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### CAPITAL RECONSTRUCTION OF SECOND TRACKS

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On 15 May 1947, the date specified by the government, the reconstruction of double tracks was completed and through two-way traffic was opened on the 1,883-kilometer Moscow-Khar'kov-Krasnyy Linen-Rostov-Prokhladnaya line. Also completed in May and opened for two-way traffic were the Leningrad-Moscow and Slavyansk-Bittovka lines and a number of sections (uchastok) and runs (peredon).

Two-way traffic on the Gryazi-Likhaya-Rostov line is to be opened by the 30th Anniversary of the October Revolution, thus completing during 1947 the reconstruction of two very important two-way trunk lines connecting the central with the southern parts of the country.

In October, a second track will be put into operation on the Kamyshovakha-Kopanskye-Gebalt'sero-Shterovka-Kartushino section of the North Donets railroad, running through the great coal-producing belt. To increase the transport capacity of the vital Kamyansk-Valuyki-Izki-Povorino trunk line, which gives egress from the Ukraine to the Volga districts, work is underway to reconstruct and put into operation this year about 126 kilometers of second tracks in limited sections.

Also revealed was the restoration of second tracks on the Southern, South Donets, Western, and other roads. This was done between 1943 and 1945, during which period the Stalino, Great Lityevsk, Litovka, Southwestern, Odessa, Lvov and other lines were restored to two-way traffic.

The postwar Five-Year Plan calls for an investment of 3.5 billion rubles in reconstruction and construction of second tracks alone. Between 1946 and 1950, the reconstruction of 9,250 kilometers of second tracks and the laying of 3,250 kilometers of new second tracks will be carried out.

The first year of the Plan gave priority to restoration of second tracks on the Donbass-Central, Donbass-Volga, Central-North Caucasus, Moscow-Leningrad, and Moscow-Smolensk roads to increase the capacity of the freight trunks and to speed service on the major passenger lines. Of the worst-destroyed second tracks, 1,240

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kilometers was restored in 1946, of which 921 kilometers was done by military railroad men.

In the beginning of 1947, the reconstructors concentrated on the Moscow-Kursk-Kharkov line, which was finished by 15 May as the government had ordered. On a stretch between Tula and Kursk, 92 kilometers of track was laid and ballasted with crushed rock in 1 - 1½ months.

Out of 14 runs due to be completed and put into service on 1 April, work was started on only seven during the first 10 days of April. On the remaining runs, work was begun only after the completion of those started earlier. On one of the labor-consuming runs (Optukha-Stal'noy Kon') requiring 9,400 man-hours, the job was finished in 13 workdays.

Outstanding results in the tremendous task of second-track reconstruction have been achieved by units under Korhevnikov, Pitskhelauri, Tsaplin, and Filimonov, and by GUREM (Main Repair Shops Section) headed by Akulanko.

The unit under Lt Col Matyunin used a new machine for screwing in wood screws, which was invented by Sgt Yermakov. Utilizing a small gasoline engine and adaptable to any type of motive power, it was easily constructed. Transported on a small rail car, it makes possible the mechanization of one of the most labor-consuming track-laying operations. This machine is not inferior to the Robel' type in productive capacity and is more simply manufactured. At present the majority of the sections engaged in tracking work are successfully using such machines. Gasoline engines have been replaced by electric motors, which, used in conjunction with portable power plants, permit the performance of this work along a wide stretch by several machines simultaneously.

Senior Sgt Popoudin invented an apparatus for drilling holes in ties. These inventions have increased the productivity of labor five to six times.

The general level of mechanization of track reconstruction work should, however, be raised still higher, inasmuch as during 1946 only 45 percent of earthwork and not more than half the track work (lifting rails for ballast, lining of rails with crushed rock) done by the Main Administration of Military Reconstruction Works was done by machinery.

In the job of mechanizing track work, the inadaptability of the Platon system tracklayer to laying rails longer than 12.5 meters, and the impossibility of utilizing the existing ballasting machines on tracks where the rails are attached to the tie with wood screws are of interest. It is urgently necessary to introduce some minor constructional changes into the Platon system loading crane which would permit the handling of members longer than 12.5 meters, and into the roller bank of the ballasting machines necessary to eliminate catching of the cleat bolts.

The labor-consuming work of scraping off crushed rock in advance of track-laying, and when renovating main lines while they are in operation, should be done by a special machine.

There has been significant improvement in the level of mechanization of second-track reconstruction during 1947. For the first time since the war the Platon tracklayer has been returned to use, and this machine will lay the second track on the Liski-Bossozh' and Debel'tsevo-Kartushino lines.

Great results should be shown by the application of engineer V. I. Platon's proposal of the new so-called "packet-roll" method of laying track. The principle of this method involves the preliminary selection of all materials for a particular section of track at a materials base, the proper placing of them in packets

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(attached to the tie with backing), and use of the simplest arrangements in transporting and laying the materials on the track.

In the very near future, the packet-roll method will be used to lay a double track on the Millerovo-Likhaya line.

Electric tie packers are coming into use.

In the reconstruction of second tracks, work on minor bridges, most of which require capital reconstruction, occupies a significant place. The presence on each line of a large number of small-type bridges distributed over considerable distances, poses for the reconstructors a serious problem of industrializing their reconstruction.

Through the initiative of engineer S. V. Brykin, a construction yard was organized on the Southeastern railroad for the manufacture of reinforced concrete blocks for small bridges. At present the construction of small bridges on the Otreshka-Likhaya line is proceeding successfully by the use of this method. Reinforced concrete spanning construction with pretested metal fixtures should also be aggressively undertaken.

The fundamental flaw in reconstruction lies in the almost complete lack of plans for the organization of operations.

Opening of the second track on the Rostov-Martsevo section of the North Caucasus system was delayed for a long time because capital reconstruction of bridges lagged behind in the absence of an organized plan of operations. The same thing occurred on the Moscow-Volovo section of the Moscow-Donbass system, where second-track operation was held up for a whole year because the drainage pipes under high fill-ins were not completed.

On the Kursk-Kharkov line, the reconstructors, when laying the second tracks, did not do the necessary work of switching them onto operational sidetracks at stations. The result was that the unloading of materials had to be done from the main track with subsequent tying up of the line.

Spacing of less than 5.30 meters between main tracks in stations cannot be allowed. There were places in some stations on the Tula-Kursk line before the war where such separation was only 4 meters.

Attention should be called to the high cost of planning. On part of the Debal'tsevo-Dolzhanskaya run of the North Donets system the cost of planning a 72-kilometer stretch was over one million rubles, which constituted about 8 percent of the entire cost of the construction of the second track.

Sometimes the planning organizations complicate the plans of reconstructing second tracks by deviating without good reason, from routes of main tracks and station platforms. Thus, Kharkov Transport Planning, assigned the job of planning second tracks on the Debal'tsevo-Popasnaya line, instead of rebuilding over the route of the old second track, provided for the construction of a route as much as 20 kilometers away from the existing track, accompanied by a great amount of earthwork. This left (with one-way traffic, according to the plan) such important coal-loading stations as Irmino, Golubovka, Mariyevka, and Varvaropol'ye on the existing single-track sections.

An analogous situation existed in the planning of second tracks in the above-mentioned Debal'tsevo-Dolzhanskaya section, where the omission of two coal-loading stations was inexcusably planned. All this leads to subsequent change of plans and, in some instances, to replanning, which prolongs construction time and sharply increases the cost of planning.

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The development of a unified plan for the reconstructors and the Main Administration of Material and Technical Supply, guaranteeing the supply of standardized tracking materials for surface construction in different lines would undoubtedly remove kinks in the job of mechanizing the reconstruction of second tracks. The absence of such a plan has brought about the laying of different types of track not only on separate lines, but on the runs of one line.

Serious attention must be paid to ballast transportation, and to mechanizing the loading and unloading of ballast. Even though the loading at the sand quarry is almost universally done by steam shovel, the stripping work is only weakly mechanized. The unloading of the ballast is done only by hand with the expenditure of much labor and the prolonged tying-up of the run.

Considering the concentration of ballast transport in 1947 over the Southeastern, North Donets, and South Donets systems, it would have been well to equip the ballast sifters (ballastnaya vertushka) [apparently a machine for unloading or spreading of ballast. "Vertushka" implies a revolving or spinning device/ with a very simple gravity-discharge device. On other lines, the unloading of sand ballast (from flat cars) should be done with tractor-bulldozers. All this would free much labor needed for other operations.

The turnover [rotation] of the ballast sifters continues to remain low, causing wasted time in stations.

Another difficulty in second-tracking is the lack of preparation of bases for tracking material. The unloading of cars of incoming materials for top construction was done without preliminary assorting of material by type and length, and this brought about a large expenditure of man power in subsequent sorting, carrying and reloading of materials which were not fitted for laying in a given place.

This year on the Gryazi-Rostov, Debal'tsevo-Dolzhanskaya, Kamyshovskaya-Popasnaya-Debal'tsevo and other projects, bases for the tracking materials were organized permitting more regular supplying of top construction materials.

The dispersion of labor force over many objectives and lines cannot be tolerated. Extreme dispersion hampers systematic control, the rendering of technical assistance, and the supplying of necessary materials. There have been several instances in our experience of the completion of jobs being delayed for 2 or more years when a large number of jobs were begun at once.

The supplying of projects with materials requires much improvement. As a result of ill-timed receipt of materials, time is lost, and the use of the labor force on operations of secondary importance becomes necessary. It is essential to concentrate materials on the most important objective. During 1947 the Otroshka-Likhaya, Zverovo-Rostov, Debal'tsevo-Kartushino, and Popasnaya-Debal'tsevo are such objectives.

Plans for organization of operations should take into account the maximum utilization of mechanization. Such jobs as procuring ties, drilling holes, putting in wood screws, preparing solutions and concrete, tamping of crushed rock, and others should be done completely by machines. Heavy machinery must be introduced.

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